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Claims

1. A method for encoding information comprising the steps of:

- preliminary generating data on regularities connecting values of all initial symbols that may be used in the said kind of information with encoded symbols;
- determining the number (n) of cycles of transforming specific initial information;
- realising the cycle of transforming which comprises:
- generating the feature (R_i) that determines the regularity used for transforming the information in the current transformation cycle;
- transforming the information using the selected regularity;
- repeating transformation cycles a certain number of times;

- *characterised in that,*
- transforming of the information in each cycle is performed in such a way that results in forming a transformed in the said cycle information (C_i) and the accessory information for the said cycle (F_i);
- the number (n) of cycles of the transformation of the initial information is selected from the preassigned criterion,
- forming an encoded message consisting of two parts, one of the said parts comprises the finally transformed information (C_n), and the second one comprises the accessory information array ($F = \{F_1, F_2, \ldots, F_n\}$).

2. The process for encoding information according to claim 1, *characterised in*

that

- transforming the information in each cycle is performed in such a way that results in forming a transformed in the said cycle information (C_i), that is shorter or equal to the length of the initial information, and the accessory information for the said cycle (F_i);
- the number (n) of cycles of the transformation of the initial information is selected from the preassigned criterion determining the size of the finally transformed information,
- forming an encoded message consisting of two parts, one of the said parts comprises the finally transformed information (C_n) that is shorter than the length of the initial communication, and the second one comprises the accessory information array ($F = \{F_1, F_2,\ldots,F_n\}$).

3. The process for encoding information according to claim 1, *characterised in that*

- transforming the information in each cycle is performed in such a way that results in forming a transformed in the said cycle information (C_i) that is shorter, equal or longer than the length of the initial information and the accessory information for the said cycle (F_i);
- the number (n) of cycles of the transformation of the initial information is selected from the preassigned criterion, determining the size of the finally transformed information and/or the degree of protectability of information,
- forming an encoded information consisting of two parts, one of the said parts comprises the finally transformed information (C_n) that is shorter, equal or longer than the length of the initial communication, and the second one comprises the accessory information array ($F = \{F_1, F_2,\ldots,F_n\}$).

4. The method according to claims 1, 2 or 3, *characterised in that* the transformed in the said cycle information (C_i) and/or the accessory information for the said cycle (F_i) are mixed in each cycle or in some cycles.

5. The method according to claims 1, 2, or 3, [or 4], characterized [characterised] in that the certain part of the accessory data for the [said] cycle (F_i) is added to the transformed in the [said] cycle data (C_i) in each or some transformation cycles.

6. The device for realising the process for encoding of information, comprises:

- an input unit,
- an output unit, the first input of which is connected with the second output of the commutator, and the second — with the output of the accessory information storage ;
- data base on the regularities connecting the initial information with the encoded information, the first input of the said data base being connected with the first output of the input unit and the second input – with the output of the random numbers generator;
- *characterised in that*, the device further comprises
- a random number generator, the input of which is connected with the first output of the making decision unit;
- the transformation unit, the first input of which is connected with the second output of the output unit, the second input –with the output of the data base, and the third input –with the first output of the commutator;
- the storage for the transformed information, the input of which is connected with the first output of the transformation unit;

- a storage for the accessory information, the first input of which is connected with the second output of the transformation unit, and the second input – with the second output of the making decision unit;
- the making decision unit, the first input of which is connected with the third output of the input unit, the second input – with the first output of the storage for the transformed communication;
- the commutator, the first input of which is connected with the second output of the storage for the transformed communication, and the second input – with the second output of the making decision unit.

7. The process for decoding of the encoded information comprising the steps of:

- preliminary generating data on regularities connecting values of all encoded symbols that may be used in the said kind of information with initial symbols, which are identical to the regularities used at encoding;
- extracting , from the encoded communication, of the data (R_i), defining the regularity which is used in the current transformation cycles and connects the values of the encoded communications with the concrete symbols of the transformed information of the current transformation cycle;
- selecting the regularity connecting the values of the encoded communications with the concrete symbols of the transformed information of the current transformation cycle;

- extracting from the accessory information (F) the accessory information for the said transformation cycle (F_i);
- transforming the transformed information (C_i) using the selected regularity and the accessory information for the said transformation cycle (F_i);
- making decision on switching to the next cycle or termination of the transformation;
- *characterised in that,* the accessory information for the said transformation cycle (F_i); is isolated from the array of the accessory information (F);
- recovering the information (C_i), which is transformed in the respective cycle, by using the selected regularity and the accessory information for the said transformation cycle (F_i);
- making decision on switching to the next cycle or termination of the transformation;

- using additionally in each transformation cycle a respective part of the accessory information, as a result of transforming with the use of the selected regularity there is formed the information recovered in the respective cycle.

8. The process of decoding the encoded information according to claims 7, *characterised in that*

- in each transformation cycle there is additionally used a respective part of the accessory information and as a result of transformation with use of the selected regularity there is formed a recovered in the corresponding cycle communication, the length of which is larger or equal to the length of the communication, resulting from transforming in the previous cycle.

9. The process of decoding the encoded information according to claims 7, *characterised in that*

in each transformation cycle there is additionally used a respective part of the accessory information, and as a result of transformation with use of the selected regularity there is formed a recovered in the respective cycle communication, the length of which is larger, equal or smaller than the length of the communication, resulting from transforming in the previous cycle.

10. The method according to claims 7, 8 or 9, *characterised in that*, the transformed in the respective cycle information (C_i) and/or the accessory information for the respective cycle (F_i) is preliminary unmixed in each cycle or in some cycles;

11. The device for realising the process for decoding information, comprises:

- an input unit.

- an output unit,
- data base on the regularities connecting the encoded information with the initial information,
- *characterised in that*, the device further comprises
- a transformation unit;
- a storage of the recovered communication;
- a storage of the accessory information;
- a making decision unit;
- a commutator,

the first input of the accessory information storage connected with first output of the input unit and the second input of the accessory information storage connected with first output a making decision unit; the first input of data base is connected to

the second output of the of the input unit, and the second input – to the first output of the storage for accessory information; the first input of the storage of the recovered information is connected to the third output of the input unit, the second – to the output of the transformation unit, and the third – to the first output of the making decision unit, the first input of the transformation unit is connected to the second output of the storage of accesory information, and the second – to the output of database, the third to the first output of the storage of recovered information; the second - to the fourth output of the input unit, the first input of the commutator is connected to the second output of the making decision unit, and the second – to the second output of the making decision unit, the output unit is connected to the second commutator output .

Add the following claim:

--12. The method according to claim 4, characterized in that the certain part of the accessory data for the cycle (F_i) is added to the transformed in the cycle data (C_i) in each or some transformation cycles.--